
Operation Manual

RS3



MAM
MUSIC AND MORE

Introduction

The resonator is a special Filter, its operation is based on the same circuit of the legendary synthesizer PS3100 / PS3300 by Korg. The purely analogue filters are realized by means of photocouplers (so-called "Vactrols"), which are characterized by low noise, a high superconducting strength and a slow response.

Possible applications:

- filter sweeps
- Phaser / Flanger-like effects
- dynamic sound changes

Principles Of Operation

The input signal (mono) passes through 3 parallel bandpass filters, whereby the intrinsic sound of the resonator is created by the high Q (resonance) of this bandpass filter. Impressive stereo effects can be achieved by modulating the resonance frequencies with different LFO signals. Dynamic sound changes result from the ENV modulation. The bandpass filters are controlled by envelope followers, which react to different frequency ranges. In addition, an external voltage can be connected as a modulation source.

Connections of the RS3

- **AC 12 VOLT**

External Power Supply (12 Volt, AC, 700 mA)

- INPUT (Front), IN (Rear)

Audio input of the RS3. If both sockets are connected, only the input on the front will be active.

- Man/EXT IN (Front), Modulation (Rear)

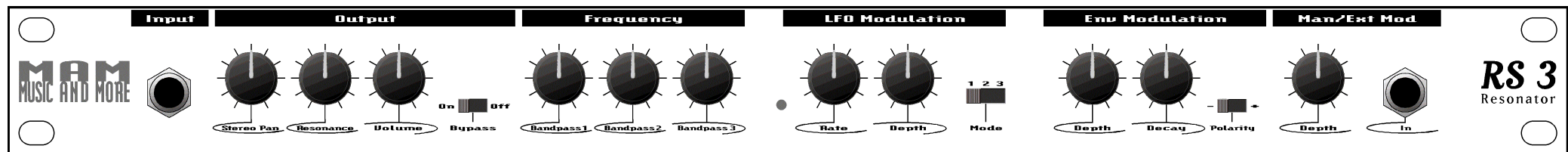
An external voltage (0-10V) for common modulation of the bandpass frequencies. If both sockets are connected, only the input on the front side is active.

- OUT (Rear)

Stereo Output of the RS3

Controls Of The RS3

Front View



- Input:

Stereo Pan:

Resonance:

Volume:

Bypass:

Frequency:

LFO Rate:

LFO Depth:

LFO Mode:

ENV Modulation:

ENV Depth:

ENV Decay:

ENV Polarity:

Man/Ext Input:

Mod Input:

Mod Input:
- Audio Mono Input

This knob adjusts the stereo panning of Bandpass1 and Bandpass3. Bandpass2 is distributed equally to the right and left output.

Determines the ratio between the original and the effected signal

Volume at the output of the RS3 (Bypass OFF)

ON: The input signal is switched to the output without change. OFF: The effect signal is present at the output of the RS3.

With these controllers the center frequency of the bandpass 1,2 and 3 can be adjusted individually.

Speed of the LFO (0.01Hz-2Hz)

Intensity of LFO modulation

Mode 1: LFO1 -> Bandpass 1.2 3 / Mode 2: LFO1 -> Bandpass 1.3; LFO2 -> Bandpass 2 / Mode 3: LFO1 -> Bandpass 1; LFO1 inverted -> bandpass 2; LFO2 -> Bandpass3

Envelope-Follower1 (LOW) -> Bandpass1, Envelope-Follower2 (MID) -> Bandpass2, Envelope-Follower2 (HIGH)

Regulates the strength of the ENV modulation for all band pass collectively.

The envelope decay time can be changed with the help of the decay control.

(+) Envelope followers shift bandpass frequencies up. (-) The envelope followers shift the bandpass frequencies down.

The operation of this controller depends on whether the external modulation input is connected or not.

Input unconnected: Manual control of the bandpass frequencies 1,2 and 3.

Input connected: The bandpass frequencies are now modulated by an external control voltage.

Rear View



- MODULATION:

AC 12 VOLT

left/Stereo:

right:

Input:
- Connection: an external voltage (0-10V) for common modulation of the bandpass frequencies. If both sockets are connected, only the input on the front side is active.

Connection: the external power supply (12V, AC, 700mA)

Stereo or left mono output

Right mono output

Audio mono input

○ Output

- Stereo Pan

Use this knob to adjust the stereo panning of Bandpass1 and Bandpass3. Bandpass2 is equally distributed on the right and left outputs.

Knob position left: Bandpass1 -> left, Bandpass3 -> right
Knob position right: Bandpass1 -> right, Bandpass3 -> left
Knob position middle: Mono mode

- Resonance

Determines the ratio between the original and the effect signal

- Volume

Adjusts the volume at the output of the RS3 (Bypass OFF)

○ Bypass

ON: The input signal is switched to the output without change.

OFF: The effect signal is present at the output of the RS3.

○ Frequency

With these controllers, the center frequency of the bandpass filters 1, 2 and 3 can be set individually.

○ LFO Modulation

- RATE

Speed of the LFO (0.01Hz-2Hz)

- Depth

Intensity of LFO modulation

- Mode

The RS3 has 3 different LFO sources: LFO1, LFO2 and LFO1 inverted. LFO 1 and 2 have a sawtooth waveform, but have a different speed (LFO 2 is about 30% faster than LFO1).

With the mode switch, these are assigned to the individual bandpasses in various combinations, which allows different stereo effects to be achieved (maximum stereo depth in mode 3).

Mode 1: LFO1 -> Bandpass 1,2 3

Mode 2: LFO1 -> Bandpass 1,3

LFO2 -> Bandpass 2

Mode 3: LFO1 -> Bandpass 1

LFO1 inverted -> Bandpass 2

LFO2 -> Bandpass3

○ ENV Modulation

The RS3 has 3 mutually independent envelope followers that respond to different frequency ranges (LOW, MID and HIGH) of the input signal. Envelope followers act on the bandpass as follows:

Envelope-Follower1 (LOW) -> Bandpass1

Envelope-Follower2 (MID) -> Bandpass2

Envelope-Follower2 (HIGH) -> Bandpass3

The bandpass frequencies thus change depending on the sound and dynamics of the input signal. This effect is particularly impressive in stereo mode (stereo pan left or right).

- Depth

Regulates the strength of the ENV modulation for all band pass collectively.

- Decay

Envelope followers respond very quickly to changes in the input signal (short attack time). The decay time (Decay) can be changed with the help of the decay control.

- Polarity

+: The envelope followers shift the bandpass frequencies up.

-: The envelope followers shift the bandpass frequencies down.

○ MAN/EXT Modulation

The operation of this controller depends on whether the external modulation input is connected or not.

- Input not connected:

Manual control of bandpass frequencies 1,2 and 3.

- Input connected:

The bandpass frequencies are now modulated by an external control voltage.
The Man controller has the following effect in this case:

Controller position middle: External voltage without effect
Control position right: Modulation of the bandpass frequencies upwards. Left
control position: Modulation of the bandpass frequencies down

Important Safety instructions

1. Read all instructions before using the unit.
2. Never use the device near water, e.g. next to a bath, a sink, a cooking area, in a wet basement or next to a swimming pool.
3. This equipment, in combination with an amplifier and headphones or speakers, may produce sound levels that may result in permanent hearing damage. Avoid too high or unpleasant loud sounds over a long period of time. If you notice a hearing damage or ear external ulcer, consult an ear specialist.
4. The appliance should be installed in such a way that sufficient fresh air supply is always ensured.
5. The appliance should not be near sources of heat, e.g. Radiators, oven or other heat-generating devices are placed.
6. The device may only be connected to standardized sockets.
7. Place the unit so that no objects, flims or dust can enter the unit interior.
8. If the unit is not used for a long period of time, unplug the external power adapter from the mains.
9. The unit should be serviced by a qualified professional if:
 - the external power supply is damaged or
 - objects or flosses have entered the device or
 - the device was in the rain or
 - the device has been damaged as a result of a fall or
 - The device should be disturbed in its normal functioning.

Do not do repairs yourself, but have them done by a qualified technician.

RS3 block diagram

